getting started guide

hp workstation x1100

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printing history

The manual printing date and part number indicate its current edition. The printing date will change when a new edition is printed. Minor changes may be made at reprint without changing the printing date. The manual part number will change when extensive changes are made.

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or document product changes. Manuals that are published on the HP Support website (www.hp.com/workstations/support) are updated often, please visit this website periodically for the most recent versions. To ensure that you receive the updated or new editions, you should also subscribe to the appropriate HP product support service. See your HP Sales Representative for details.

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important warnings

avoiding electrical shocks

WARNING

To avoid electrical shock, do not open the power supply. There are no user-serviceable parts inside.

To avoid electrical shock and harm to your eyes by laser light, do not open the laser module. The laser module should be serviced by service personnel only. Do not attempt to make any adjustment to the laser unit. Refer to the label on the CD-ROM for power requirements and wavelength. This product is a class I laser product.

removing and replacing the cover

WARNING

For your safety, never remove the Workstation cover without first disconnecting the power cord from the power outlet and removing any connection to a telecommunications network. If a Power Protection Device is fitted to your Workstation, you must shut down your computer using its on/off switch, then remove the power cord before removing the Workstation's cover. Remove the Power Protection Device cables before any servicing operation. Always replace the cover before switching the Workstation on again.

safety information

WARNING	**There is a danger of explosion if the battery is incorrectly installed. For your safety, never attempt to recharge, disassemble, or burn an old battery. Replace the battery with the same or equivalent type, as recommended by the manufacturer.**
	The battery in this Workstation is a lithium battery that does not contain any heavy metals. However, to protect the environment, do not dispose of batteries in household waste. Return used batteries either to the shop from which you bought them, to the dealer from whom you purchased your Workstation, or to HP so that they can either be recycled or disposed of in the correct way. Returned batteries will be accepted free of charge.

if you have a modem

WARNING	**Do not attempt to connect this product to the phone line during a lightning storm. Never install telephone jacks in wet locations unless the telephone line has been disconnected at the network interface. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface. Use caution when installing or modifying telephone lines. Avoid using a telephone (other than a cordless type) during an lightning storm. There may be a risk from lightning.**
	Never touch or remove the communications board without first removing the connection to the telephone network.
	Use minimum N° 26 AWG wire for telephone cable.

WARNING	**Some parts inside the computer may be hot, wait approximately three to five minutes for them to cool down before touching them.**

avoiding static electricity

CAUTION   Static electricity can damage electronic components. Turn OFF all equipment before installing an accessory card. Don't let your clothes touch the accessory card. To equalize the static electricity, rest the accessory card bag on top of the Workstation while you are removing the card from the bag. Handle the card as little as possible and with care.

information on ergonomic issues

It is strongly recommended that you read the ergonomics information, available in the *Working In Comfort* section of this manual, <u>before</u> using your Workstation.

You can access more extensive ergonomics information from your Workstation by clicking the **Start** button, and then **Programs** ➝ **HP Info** ➝ **Working in Comfort**, or by connecting to HP's web site www.hp.com/ergo.

recycling your workstation

HP has a strong commitment toward the environment. Your HP Workstation has been designed to respect the environment as much as possible. HP can also take back your old Workstation for recycling when it reaches the end of its useful life. HP has a product take-back program in several countries. The collected equipment is sent to one of HP's recycling facilities in Europe or the USA. As many parts as possible are reused. The remainder is recycled. Special care is taken for batteries and other potential toxic substances, these are reduced into non-harmful components through special chemical processes. If you require more details about HP's product take-back program, contact your local dealer or your nearest HP Sales Office.

finding information and help

If you want...	Refer to...
To set up your computer	• *x1100 Installation Poster* — shipped with the Workstation, basic information only. • This manual — basic information only.
To troubleshoot your Workstation, install accessories, find part numbers.	• This manual — basic information only • *x1100 Technical Reference* — complete information (web accessible, see the section "downloadable documentation from hp's web site" in this Preface) including: system board switches, IRQs, DMAs, and I/O Addresses, power consumption and acoustic noise emission test configurations, how to configure your network connection, parts installation and troubleshooting.
Support information	www.hp.com/go/workstationsupport — downloadable documentation, drivers and utilities, service and support options.
Warranty information	This manual. See "Hardware Warranty" or "HP Software Limited Warranty" in Appendix A.

downloadable documentation from hp's web site

The HP Workstations web site (www.hp.com/go/workstationsupport) contains a wide range of free information, including downloadable documentation, service and support options, and the latest versions of drivers and utilities.

To view and print the above guides, you must have Adobe's Acrobat Reader installed on your Workstation. You can download Adobe's Acrobat Reader free of charge from the Adobe Systems Incorporated web site: www.adobe.com.

pre-installed technical support information

Additional support information, including *hp instant support*, has been pre-installed on your system. To view this information, click on the Windows **Start** button, select **Programs**, select **HP Info** and finally select **Your HP Workstation**.

hp x1100 technical characteristics

Characteristics	HP Workstation x1100
Weight (configuration with one CD-ROM drive, excluding keyboard and display)	14.8 kg (32.5 pounds)
Dimensions	Width: 20.6cm (8.1in.) Height: 47.5cm (18.7in.) Depth: 44.2cm (17.4in.)
Footprint	0.09 m^2 (0.98 sq ft).
Power Supply Input voltage (input current, max.) Input frequency: Maximum output power:	 100 - 127 VAC, 7.0 A rms 200 - 250 VAC, 3.5 A rms 50/60Hz 250 W
Storage Humidity	8% to 85% (relative)
Operating Temperature	+10 ˚C to +35 ˚C (+40 ˚F to +95˚F).

NOTE

Operating temperature and humidity ranges may vary depending on the mass storage devices installed. High humidity levels can cause improper operation of disk drives. Low humidity can aggravate static electricity problems and cause excessive wear of the disk surface.

Power consumption and acoustics figures are valid for a standard configuration. For other configurations, go to:

    www.hp.com/workstations

NOTE
When the computer is turned off by the power button on the front panel, the power consumption falls below 3W, but is not zero. This on/off method extends the life of the power supply. To reach zero power consumption in "off" mode, either unplug the power outlet or use a power distribution unit with a switch. When the power consumption is zero for an extended period of time, the life of the internal battery is shortened.

1 setting up and using your workstation

This *Guide* provides you with essential information on initial setup, basic troubleshooting and warranty for your HP workstation x1100.

setting up your hp workstation x1100

WARNING

If you have any doubt that you can lift the workstation or monitor safely, do not try to move them without help.

1. Check the materials list shipped with your workstation to verify that you have all of the components necessary for setting up your workstation.

2. Place the workstation in an area with easily accessible power outlets and enough space for the keyboard, mouse, and any other accessories.

3. Position the workstation so that its rear connectors are easily accessible.

installation tools

No tools are required to set up your workstation. However, if you plan to install or replace an accessory inside your workstation, you will need a T-10 and T-15 Torx screwdriver or a flat-blade screwdriver.

connecting devices

Before connecting any cords or cables to your workstation, please read the *Warning Notices* in the Preface of this manual.

If you purchased a graphics card that was not installed in your workstation at the factory, you must install that card now. To install, refer to the instructions that came with the card or see the *x1100 Technical Reference* available at: www.hp.com/go/workstationsupport.

Figure 1-1   Location of Rear Panel Connectors

Line Voltage Switch

Cover lock

Power Connector

Keyboard connector

Serial port A   **Mouse connector**

Serial port B

**Line Out (headphone)
connector**

Parallel port

Line In connector   **LAN connector**

Microphone connector

Dual USB connectors   **Monitor connector**
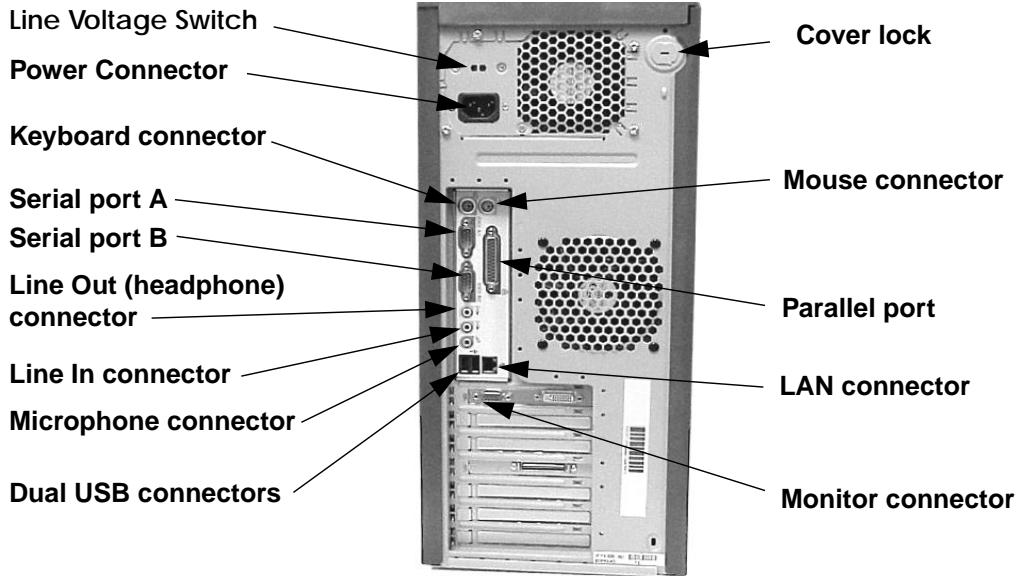
Match the color-codes of the connectors. *The connectors are shaped to go
in one way only.* Figure 1-2 shows typical connectors.

Figure 1-2   Typical Connectors
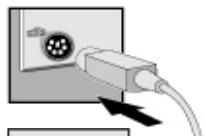
Keyboard (purple)   **Mouse (green)**
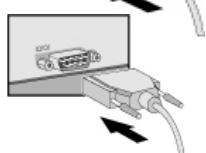
**Two 9-pin Serial connectors
(turquoise)**

**25-pin Parallel connector
(burgundy)**.

Refer to the manual that
came with the printer.
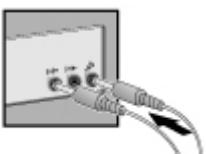
Audio connectors
Microphone (pink)
Audio In (blue)
Audio Out (lime green)
Note: plugging in the audio
out connector disables the
internal speaker
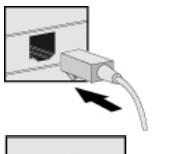
LAN

You must use the network card
connector to connect to a LAN.
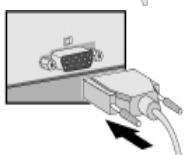
Monitor connector

Refer to the manual that came
with the monitor. You must use
the graphics card connector to
connect your monitor.

**Two USB connectors
(black)**

connecting your keyboard and mouse

WARNING
Improper and prolonged use of keyboards and input devices can be associated with repetitive strain injury (RSI) to soft tissues in the hands and arms. If you do experience discomfort or pain while using any computing equipment, discontinue use immediately and consult your physician as soon as possible.

Your comfort and safety are our primary concern. Consequently, we strongly recommend that you read HP's ergonomic information before using your workstation. For detailed information, refer to HP's online version of "Working in Comfort" which is preloaded on your workstation's hard disk or visit HP's Working in Comfort Web Site at: www.hp.com/ergo

A summary is provided in the "working in comfort and safety" on page 37.

This workstation uses a Standard 104 keyboard with a PS2 connector. To connect your keyboard and mouse, follow these steps:

1. Connect your HP keyboard to the workstation. *The connector is color-coded for easy matching.* See *Figure 1-3*.

2. Connect your HP mouse to the workstation. *The connector is color-coded for easy matching.* See *Figure 1-3*.

Figure 1-3   Connecting the Keyboard and Mouse

setting the line voltage switch

CAUTION   Care must be taken to ensure that the line voltage switch is set correctly. Failure to do this could destroy the power supply if the line voltage switch is set to 115V and AC line voltage is 230V. If the line voltage switch is set to 230V and the AC line voltage is 115V, your system will fail to boot.

Before you connect your power cord to the workstation, you need to ensure that the line voltage switch on the back of your workstation is set to the correct line voltage for your power outlet. To set the line voltage switch, follow these steps:

1. Place the workstation so that you are looking at the back of it.

2. Use a small thin bladed screwdriver to slide the workstation's line voltage switch to the left until you see 115 in the right opening of the switch or 230 in the left opening. See Figure 1-4.

Figure 1-4   **Setting the Workstation's Line Voltage Switch**
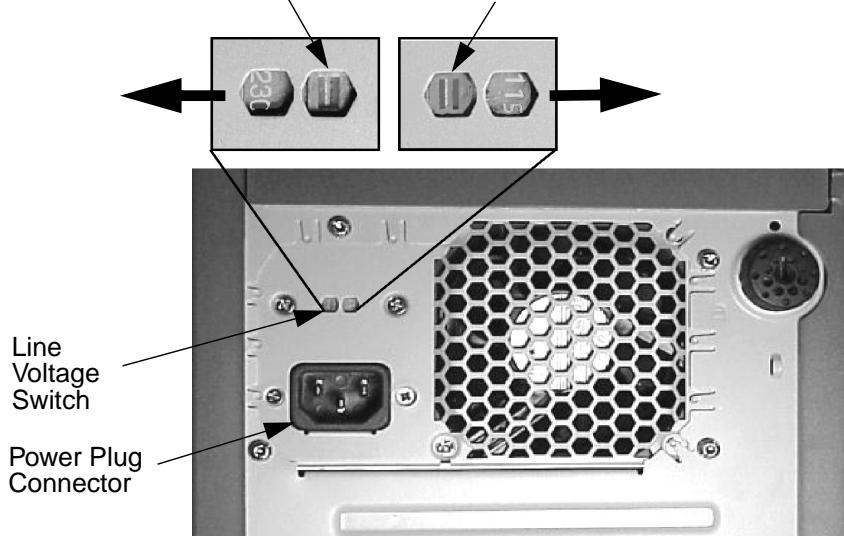
connecting the power cord

WARNING   **For your safety always connect equipment to a grounded wall outlet. Always use a power cord with a properly grounded plug, such as the one provided with the equipment, or one in compliance with your national safety standards. This equipment can be disconnected from the power by removing the power cord from the power outlet. This means the equipment must be located close to an easily accessible power outlet.**

1. Connect the power cords to the rear of the monitor and the computer. (*The connectors are shaped to go in one way only.*)

2. Connect the monitor's power cord and the computer's power cord to a grounded outlet.

selecting a monitor for your workstation

Table 1-1 provides a list of display resolutions and fequencies for the graphics cards supported by your workstation. Using these resolutions and frequencies you will be able to select the appropriate monitor for your graphics card. Note that frequencies of 85Hz and higher provide ergonomic flicker-free viewing.

If the monitor you select is DDC-2B or DDC-2B+ compliant, the graphics card will automatically limit itself to those resolutions and frequencies supported by that monitor. In this case, you do not need to use Table 1-1 to select your monitor.

CAUTION   To prevent possible damage to your montior, make certain you select a monitor that supports the resolutions and frequencies you wish to use.

Table 1-1   **Graphics Card Resolutions and Frequencies**

Graphics Card	Display Resolution[1]	Vertical Frequency (Hz)[2]
Matrox G450	640×480	60, 70, 72, 75, 85, 100, 120, 160, 200
	800×600	60, 70, 72, 75, 85, 100, 120, 160, 200
	1024×768	60, 70, 72, 75, 85, 100, 120, 160
	1280×1024	60, 70, 72, 75, 85, 100, 120
	1600×1200	60, 70, 72, 75, 85, 100
	1920×1200	60, 70, 72, 75, 85, 100
	2048×1536	60, 70, 72, 75, 85
nVidia Quadro2 EX	640×480	60, 70, 72, 75, 85, 100, 120, 140, 144, 150, 170, 200, 240
	800×600	60, 70, 72, 75, 85, 100, 120, 140, 144, 150, 170, 200, 240
	1024×768	60, 70, 72, 75, 85, 100, 120, 140, 144, 150, 170, 200, 240
	1280×1024	60, 70, 72, 75, 85, 100, 120, 140, 144, 150, 170
	1600×1200	60, 70, 72, 75, 85, 100, 120
	1920×1200	60, 70, 72, 75, 85, 100
	2048×1536	60, 70, 72, 75

Table 1-1 **Graphics Card Resolutions and Frequencies**

Graphics Card	Display Resolution[1]	Vertical Frequency (Hz)[2]
nVidia Quadro2 Pro	640×480	60, 70, 72, 75, 85, 100, 120, 140, 144, 150, 170, 200, 240
	800×600	60, 70, 72, 75, 85, 100, 120, 140, 144, 150, 170, 200, 240
	1024×768	60, 70, 72, 75, 85, 100, 120, 140, 144, 150, 170, 200, 240
	1280×1024	60, 70, 72, 75, 85, 100, 120, 140, 144, 150, 170
	1600×1200	60, 70, 72, 75, 85, 100, 120
	1920×1200	60, 70, 72, 75, 85, 100
	2048×1536	60, 70, 72, 75

1. Only common resolutions are listed. Other intermediate resolutions are possible.
2. The maximum frequency may not be available at all color depths.

component overview

This section provides information about locating accessories and hardware parts in your HP workstation x1100.

Figure 1-5   **Workstation**
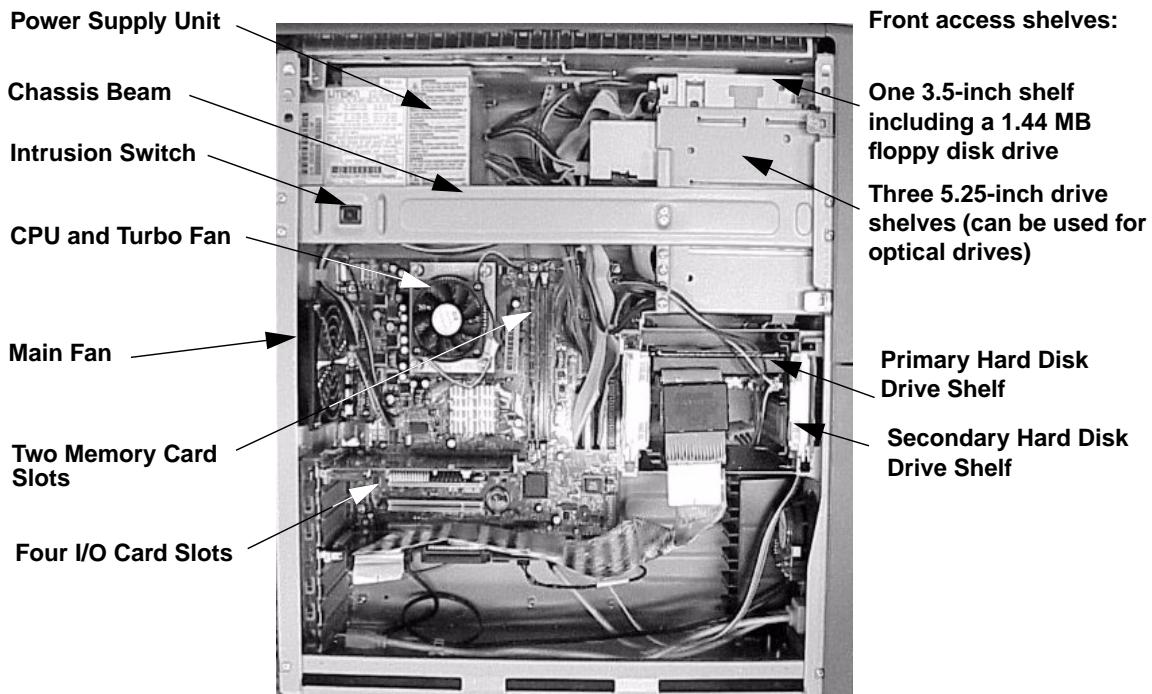
Power Supply Unit

Chassis Beam

Intrusion Switch

CPU and Turbo Fan

Main Fan

Two Memory Card Slots

Four I/O Card Slots

Front access shelves:

One 3.5-inch shelf including a 1.44 MB floppy disk drive

Three 5.25-inch drive shelves (can be used for optical drives)

Primary Hard Disk Drive Shelf

Secondary Hard Disk Drive Shelf

Contact your dealer for an up-to-date list of supported devices or check the HP web site: www.hp.com/go/workstationsupport.

Figure 1-6   **HP Workstation x1100 System Board**

Memory module sockets supporting
two DDR modules

Processor
connector
(heatsink and
processor not
shown)

Primary IDE
Connector

Secondary IDE
Connector

AGP Card Slot

Floppy Disk Drive
Connector

Three PCI Card
Slots
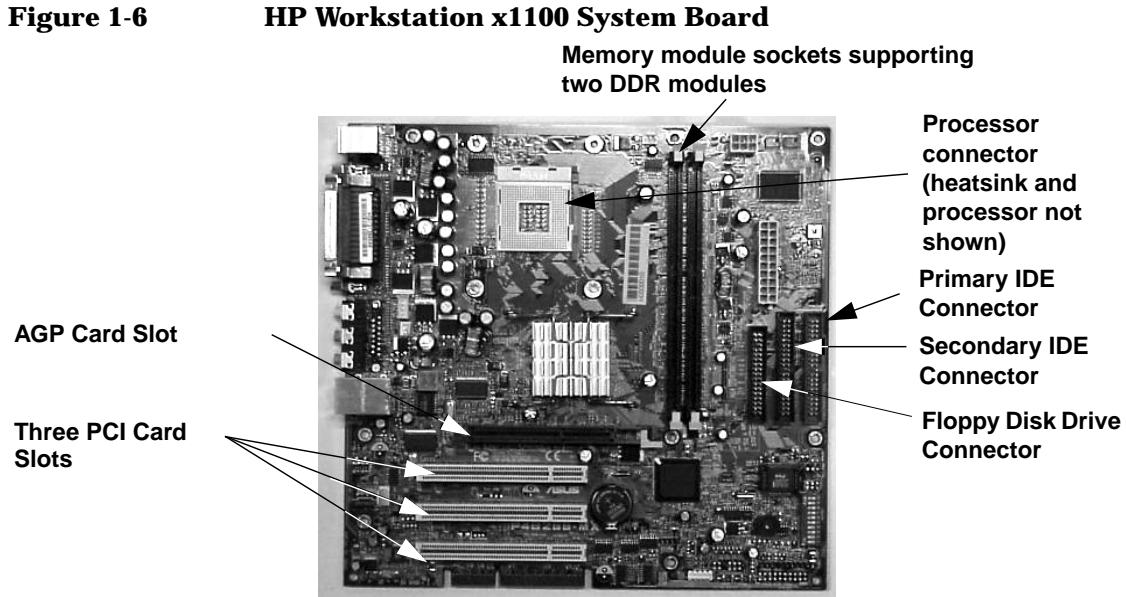
removing and replacing the cover and front bezel

WARNING   **For your safety, never remove the workstation cover without
first disconnecting the power cord from the power outlet and
removing any connection to a telecommunications network. If a
Power Protection Device is fitted to your workstation, you must
shut down your computer using its on/off switch, then remove its
power cord before removing the workstation's cover. Remove the
Power Protection Device cables before any servicing operation.
Always replace the cover before switching the workstation on
again.**

removing the workstation cover

1. Switch off the display and computer. Disconnect all power cables and any LAN or telecommunications cables.

2. Unlock the cover lock at the back of the workstation, if required. See Figure 1-1.

3. Pull outward on the cover latch, grasp the edges of the cover and lift the cover upward to remove it. See Figure 1-6.

Figure 1-7   **Removing the Cover**

WARNING   **Parts inside the computer may be hot, wait for them to cool before touching them.**

removing the front bezel

The front bezel is divided into two sections:

- The upper bezel gives access to three 5.25-inch shelves and one 3.5-inch shelf.

- The lower bezel gives access to the Firewire connector and two USB connectors. The lower bezel cannot be removed.

To remove the upper bezel:

1. Unclip the two bezel latches located on the left-hand side of the bezel. See Figure 1-7.

2. Open the bezel slightly and then gently push it outward. See Figure 1-7.

Figure 1-8   **Removing the Bezels**
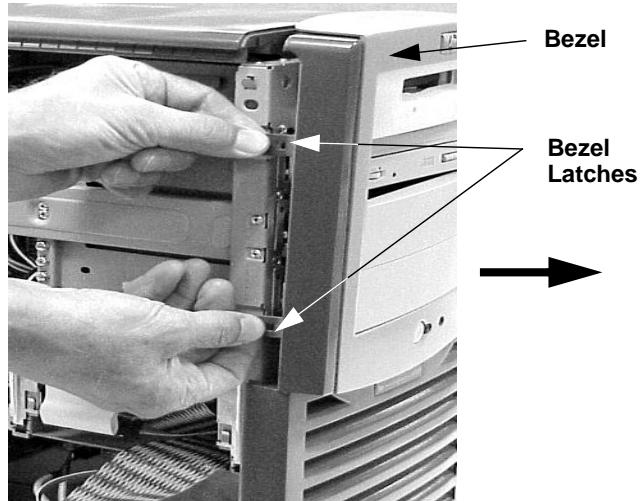
replacing the cover and front bezel

1. Ensure that all internal cables are properly connected and safely routed.

2. Ensure that the bezel is correctly oriented, align the two plastic bezel hinges with their bezel slots on the right-hand side of the chassis, and swing the bezel closed. Confirm that the bezel latches as shown in Figure 1-7 are seated flat against the chassis.

Figure 1-9   Inserting the Bezel Hinges into their Slots on the Workstation

Bezel Hinge
Slots

Bezel Hinges
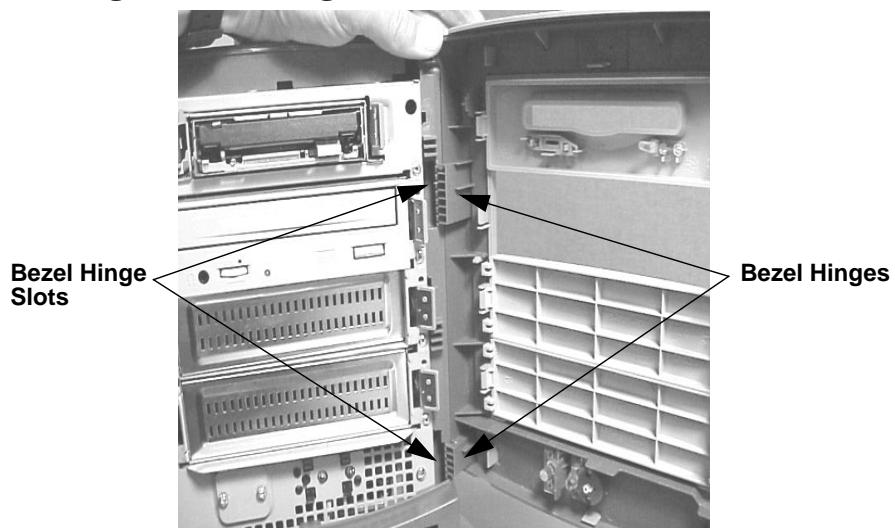
3. Insert the cover flanges located on the bottom edge of the cover into their cover slots on the bottom edge of the workstation. See Figure 1-9. Next, close the cover by rotating it upward in the direction of the arrow. You will hear the cover snap into place when the cover is securely closed.

Figure 1-10   Replacing the Cover
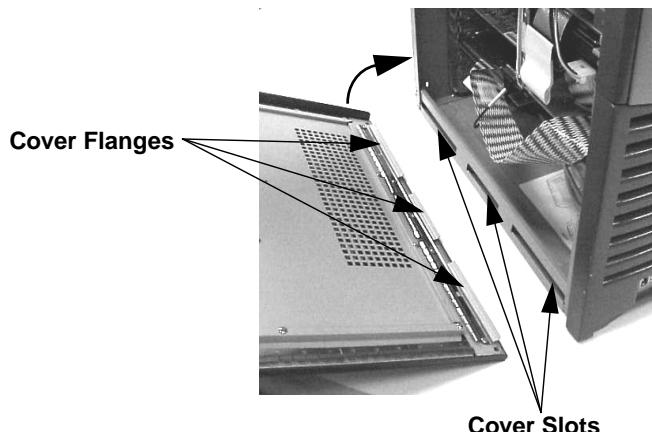
4. Lock the cover using the key provided, if required. Reconnect all the power and telecommunication cables.

removing and replacing workstation components

Instructions for removing and replacing workstation components, such as the power supply, can be found in the *x1100 Technical Reference* located at this web site:

    www.hp.com/go/workstationsupport

This web site contains a wide range of free information, including downloadable documentation, service and support options, and the latest versions of drivers and utilities.

starting and stopping your workstation

Your workstation has pre-installed software; it is initialized the first time you start the workstation. The software initialization process takes a few minutes. This process sets up the software in your language and sets up your software to use the hardware installed in your computer (you can change the settings after the software has been initialized).

starting your workstation

1. Switch on the monitor before you start your workstation.

2. Start your workstation in one of these ways:

   • Press the power button on the front panel.

   • Press the keyboard space bar (multimedia keyboard models only).

   The keyboard power-on feature will work only if the appropriate system board switch is set (the default setting is enabled).

3. Type your password and press **Enter** to use the workstation. The password prompt is displayed only if you have set a password in the workstation's Setup program.

initializing your software

NOTE   Do NOT switch OFF the workstation while the software is being initialized — this could cause unexpected results.

To initialize your software:

1. When the workstation is switched on, the software initialization process starts. It displays the software license agreement, gives you an opportunity to read *Working in Comfort* (ergonomics advice for computer users), then asks questions about the workstation

2. When the initialization process has finished, click OK and the workstation will restart.

creating an emergency repair disk

During the initialization of your software, it is very important that you create an Emergency Repair Disk for the operating system, when prompted. HP recommends that you use new diskettes for this purpose.

For more information on how to create these diskettes, refer to the documentation that came with your application software or operating system.

stopping your workstation

To stop the workstation, first make sure that you have exited all applications and then use the **Shut Down** command in the Start menu. When prompted, press the power button on your workstation.

Do not power off using the power button until prompted to do so, otherwise you may lose any unsaved data from open applications.

viewing your workstation configuration

The Summary Screen gives you a summary of the current configuration of your workstation (for example: BIOS version, CPU speed, memory module size, and installed mass storage devices).

You should check the configuration of your workstation when you first use it and each time after you install, remove, or upgrade accessories. To check the configuration:

1. Turn on the display and then the workstation. If the workstation is already turned on, save your data and exit all programs, then restart the workstation. Consult your operating system documentation for any special instructions concerning turning off and restarting your workstation.

2. Press **Esc** when the start-up logo appears on your display. This takes you to the Summary Screen. (To go immediately into the Setup program, and bypass the Summary Screen, press **F2** instead of **Esc**). The Summary Screen is displayed for only a short time. Press the **Pause/Break** key on the keyboard to retain the Summary Screen until another key is pressed.

configuring your workstation

Use the Setup program to configure your workstation (for example: setting up system and user passwords, installing and upgrading mass storage devices), and to solve configuration problems.

It is recommended that you take note of any changes to the system setup.

starting the hp setup program

1. Turn on the display and then the workstation. If the workstation is already turned on, save your data and exit all programs, then restart the workstation.

2. Press **F2** while **F2 Setup** is displayed at the bottom of the screen. If you fail to press **F2** in time and the start-up process continues, you will need to restart your workstation so you can press **F2**.

The opening screen of the workstation's Setup program is displayed. The Main Menu presents a list of fields, for example, the installed BIOS version or Date and Time.

A band along the top of the screen offers a list of menus. Select a menu by using either the left or right arrow keys.

main menu

The Main Menu presents a list of fields, including:

- The installed BIOS version
- Reset Configuration Data
- System Time
- System Date
- Key Click
- Key Auto-Repeat Speed
- Delay Before Auto-Repeat
- NumLock at Power-on

By default, "Reset Configuration Data" is set to **No**. Select **Yes** to clear the system configuration data and return to the default settings.

advanced menu

The Advanced Menu offers a list of sub-menus allowing you to:

- Configure memory caching, USB ports, Integrated I/O Ports and Integrated Audio Devices
- Enable floppy disk drives, IDE devices (Primary and Secondary)
- Workstation Devices.

security menu

Sub-menus are presented for changing the characteristics and values of the System Administrator Password, User Password, Power-on Password, Fixed Disk Boot Sector and for preventing unauthorized start-up from the Floppy, CD-ROM and IDE-HDD drives (refer to "setting passwords in the hp setup program" on page 34).

boot menu

Select the order of the devices from which you want the BIOS to attempt to boot the operating system. The QuickBoot mode option allows the system to skip certain tests while booting. This decreases the time needed to boot the system.

power menu

The Network Interface option enables the system to return to normal speed when a specific command is received by the network interface.

Setup changes system behavior by modifying the power-on initialization parameters. Setting incorrect values may cause system boot failure. Should this occur, press **F9** to load the Setup default values to recover.

setting passwords in the hp setup program

You can set passwords to provide different levels of protection for your workstation: the Administrator password, the User password and the Power-on password. You set these passwords using the **Security** menu in the Setup program.

The Administrator can access and change all settings in the Setup program, while the User can only access and modify certain items in the Main menu.

When the Power-on Password option is enabled, you need to enter a password every time you boot the workstation. Either the Administrator or User Password can be used.

to set a password

1. Start the Setup program.

2. Select the **Security** menu.

3. Select the **Administrator** or **User** password submenu.

4. Choose the **Set Administrator** or **User Password** setup item. You must enter your password twice.

To enable the Power-on Password, select the **Enabled** setup item.

1. Press **Esc** or select **Exit Menu**, then **Exit Saving Changes** to save your changes and exit the Setup program.

To remove the password, follow the same procedure as to set a password. You will be asked to enter the existing password first. Then, for the new password, leave the password field blank and press **Enter**. To confirm your choice, press **Enter** a second time.

using power management

Power management enables you to reduce the workstation's overall power consumption by slowing down the workstation's activity when it is idle. For more information on power consumption data, refer to the *x1100 Technical Reference* on HP's web site at:

www.hp.com/go/workstationsupport.

Operating systems differ in their power management capabilities. Refer to your operating system documentation for more information.

software and driver availability

In the "Software and Drivers" section of the HP support site www.hp.com/go/workstationsupport, you can download the latest drivers and BIOS for your workstation.

You can also register to obtain information on new driver availability automatically.

Contact your dealer for an up-to-date list of supported devices or check the HP web site: www.hp.com/go/workstationsupport.

before writing to your CD-RW drive (if installed)

The CD-RW software for the drive that is installed in your HP Workstation is not included in the pre-loaded software. You must install the applications manually from the Applications CD-ROM (provided with the Workstation or as an accessory kit) before you can use the write/re-write functionality of the drive. The installation of these two software applications must be performed in the following manner:

1. Put the Applications CD-ROM into the CD drive.

2. Choose the appropriate language when the installation window appears. Next, follow the instructions to install this application.

3. Restart your system once all applications have been installed.

4. Start using the full functionality of the CD-RW drive when the system has been restarted.

If you do not install these two software packages, you can only use the CD-RW drive's read functionality.

working in comfort and safety

preparing your work environment

When using HP computing equipment, it is important that your work environment contributes to your comfort and productivity:

Figure 1-11   **Your Work Environment**
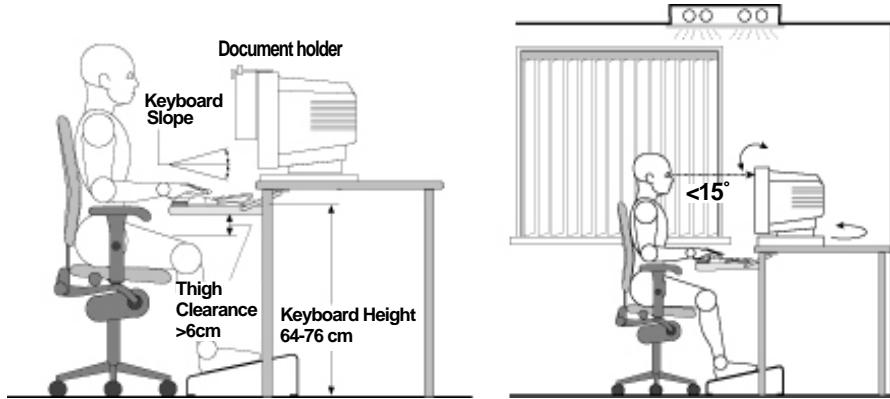
- *Work Surface Height*. Your work surface should be height adjustable. To ensure that your work surface is at the correct height, first adjust the height of your chair so that your feet are firmly on the floor or on an angled foot rest, then adjust the work surface height until your forearms are parallel to the floor when you have your fingers on the keyboard or other input devices.

- *Chair*. Your chair should provide a comfortable sitting position including features such as a height and tilt adjustment feature, curved seat edge, a stable base (for example, five legs and castors, adjustable back support, a freely rotating swivel, fully adjustable padded arm rests).

- *Monitor*. Place your monitor so that the top of the screen is at, or slightly below, eye level (up to 15 degrees).

- *Work Surface Arrangement*. Make sure that all elements of your HP workstation system for example, monitor, document holder, keyboard, mice and other input devices, and headphones and speakers- are optimally arranged and adjusted to meet your personal requirements. For example, if you are primarily using the keyboard, place it directly in front of you, not to the side. If your work involves extensive use of a mouse or other pointing device, place that device directly in front of your left or right arm. If you are using both a mouse and keyboard, place them both at the same work surface

height and close together. If a palm rest is used, the height should be flush with the front edge of the keyboard. Other items, such as your telephone or notepad, should also be considered.

CAUTION   Various aspects of using mice, keyboards and other input devices may increase your risk of discomfort or injury. Optimize your comfort and safety by positioning these devices properly.

your work posture

Sitting in one position for long periods can be uncomfortable. To minimize the potential risk for physical discomfort or injury, it's important that you maintain a proper posture.

- *Head*. When viewing your monitor, your head should not be tilted more than 15 degrees forward, and do not turn your head toward either side.

- *Back*. While sitting at your work surface, make sure your back is supported by the chair's backrest in an erect position or angled slightly backwards.

- *Arms*. Make sure your arms and elbows are relaxed and loose, with your upper arms perpendicular to the floor or tilted downward not more than 15 degrees. Keep your forearms and hands approximately parallel with the floor with elbows bent between 70 and 115 degrees. Keep your elbows close to your sides (less than 20 degrees away from your body).

- *Hands, Wrists, Forearms*. Try to keep your hands wrists and forearms in a relaxed neutral position when using your mouse keyboard or other input devices. For example, while using your keyboard and mouse, rest your forearms (flat) on your desktop.

- *Legs*. Your thighs should be horizontal or angled slightly downward. Your lower legs should be near a right angle to your thighs. Make sure there is sufficient room under the work surface for your legs.

- *Feet*. If after adjusting your chair you cannot rest your feet comfortably on the floor, use a footrest, preferably one that can be adjusted in height and angle.

additional ergonomic issues

- Look away from the screen from time-to-time to help reduce eyestrain. Focus on distant objects briefly, and blink periodically to lubricate your eyes. You also should have your eyes checked on a regular basis and ensure your eyeglass prescription is suitable for working on a computer monitor.

- Remember to occasionally shift position and move your body. Keeping your body in one position for long periods is unnatural and stressful. When prolonged work is required, take frequent short breaks. As a rule of thumb, a five or ten minute break every hour is a good idea. Short frequent breaks are more beneficial than longer less frequent breaks. Data show that people who work for long periods of time without a break may be more prone to ergonomic injury.

- Changing tasks frequently will help prevent muscle stiffness. Examples: alternating between keyboarding, reading, writing, filing, and moving around in your work environment, helps you maintain a relaxed posture. Occasionally stretch the muscles in your hands, arms, shoulders, neck and back. You should stretch at least as often as you take brief task breaks — at least once every hour.

- Discomfort may be alleviated by using alternative ergonomic designs and accessories such as ergonomically personalized chairs, palm rests, keyboard trays, alternative input devices, prescription eyeglasses, anti-glare screens, and more. Seek additional information from the sources available to you, including your employer, doctor, local office supply store, and the *Information Sources* listed in the online version of *Working in Comfort*, preloaded on the hard disk of your HP computing equipment or available on the HP web site: `www.hp.com/ergo`

setting up and using your workstation
working in comfort and safety

2   troubleshooting your workstation

This chapter provides you with essential information on basic troubleshooting for your HP workstation x1100.

screen is blank because the system failed to boot

Your workstation's operating system will fail to boot if the line voltage switch is set to 230V and AC line voltage is 115V.

To solve this problem:

1. Place the workstation so that you are looking at the back of it.

2. Use a small thin bladed screwdriver to slide the workstation's line voltage switch to the left until you see 115 in the right opening of the switch. See Figure 2-1.

Figure 2-1   **Setting the Workstation's Line Voltage Switch**
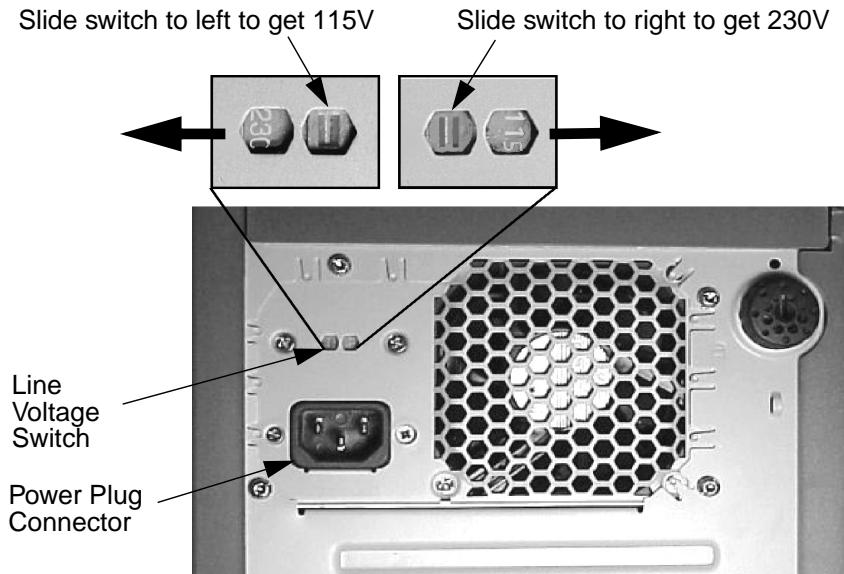
Slide switch to left to get 115V   Slide switch to right to get 230V

Line Voltage Switch

Power Plug Connector

CAUTION   Care must be taken to ensure that the line voltage switch is set correctly. Failure to do this could destroy the power supply if the line voltage switch is set to 115V and AC line voltage is 230V.

solving hardware problems

This table gives basic troubleshooting tips. For more in-depth information, see the section "hp Diagtools hardware diagnostics" in this manual.

Table 2-1   **Your Workstation Does Not Start Properly**

The Workstation doesn't power on.	
Make sure...	*How*
The workstation's power cord is properly connected.	Connect the power cord to a working power outlet and to the rear of the workstation.
There is a buzzing noise.	
A beep code when the workstation starts up means that there is a configuration problem.	
Make sure...	*How*
This is the pre-boot diagnostics capability feature. It detects problems with your workstation.	1. Count the number of beeps after the buzzer (refer to the section "pre-boot diagnostics audio signal" in this chapter). 2. Contact HP Support (refer to page 56).
If you still have a problem, run HP e-Diagtools or Diagtools (refer to page 50).	
There is no image during boot and the screen is blank.	
Make sure...	*How*
The line voltage switch, located on the back of your workstation, is set to 115.	See the section "screen is blank because the system failed to boot" in this chapter.
If the Workstation starts and you still have a problem, run HP e-Diagtools (refer to page 50).	

Table 2-2   **Your Workstation Has a Hardware Problem**

The keyboard doesn't work.	
Make sure...	*How*
The keyboard cable is correctly connected.	Plug the cable into the correct connector on the back of the workstation. Color coding is used for easy matching.
The keyboard is free of debris.	Check all keys are at the same height, and none are stuck down.
The keyboard itself is not defective.	Either replace the keyboard by a known working unit or try the keyboard with another workstation.
You are using the correct driver. The correct driver is pre-installed on all Windows NT 4.0 and Windows 2000 preloaded systems. For other operating systems, refer to your operating system's documentation.	Download the latest driver from HP's Web at: www.hp.com/go/workstationsupport
You are using the latest BIOS.	Download the latest BIOS from HP's Web at: www.hp.com/go/workstationsupport
If you are using a USB keyboard connection, you must be using the Windows 2000 operating system.	Currently, Windows NT does not support the USB connection.
The monitor doesn't work.	
The workstation's power indicator light works but the monitor remains blank	
Make sure...	*How*
The monitor is switched ON (LED is on).	Refer to the monitor manual for an explanation of the LED signals (green, orange, or blinking).

Table 2-2   **Your Workstation Has a Hardware Problem**

The monitor's power cord is correctly connected.	Connect the power cord – ensure it is plugged into a working grounded power outlet and into the monitor.
The graphics card is installed and the monitor (video) cable is correctly connected.	Connect the monitor (video) cable – ensure it is properly connected to both the workstation and the monitor. Ensure that the cable is connected to the graphics card's connector.
The monitor's brightness and contrast settings are correctly set.	Check the settings using the monitor's OSD (on-screen display) or using controls on the front of the monitor.
There is an image during boot but then the screen goes blank.	
Make sure...	*How*
The monitor settings in your workstation are compatible with your monitor.	• Windows 2000: Restart the workstation. The Startup screen is displayed. When prompted, press **F8** and then start the workstation in VGA mode. When the workstation has started, double-click on the **Display** icon in your workstation's **Control Panel**, then click on the **Settings** button. Use the sliding control to reset the resolution. • Windows NT: Enter VGA mode when prompted during start-up.
If the Workstation starts and you still have a problem, run HP e-Diagtools (refer to page 50).	

Table 2-2   **Your Workstation Has a Hardware Problem**

The mouse doesn't work.	
Make sure...	*How*
The mouse cable is correctly connected.	1. Switch off the workstation (not necessary with a USB mouse). 2. Plug the cable into the correct connector on the back of the workstation (color coding is used for easy matching). 3. Switch on the workstation.
You are using the correct driver. If you are using HP's enhanced mouse, ensure that the correct driver is installed. *This driver is provided with all Windows 2000 preloaded systems.*	Download the latest driver from HP's Web at: `www.hp.com/go/workstationsupport`
You are using the latest BIOS	Download the latest BIOS from HP's Web at: `www.hp.com/go/workstationsupport`
The mouse is clean.	Clean the mouse ball as shown below.
The mouse itself is not defective.	Replace the mouse with unit that is known to work or try the mouse with another workstation.
If the workstation starts but you still have a problem, run HP e-Diagtools (refer to page 50).	
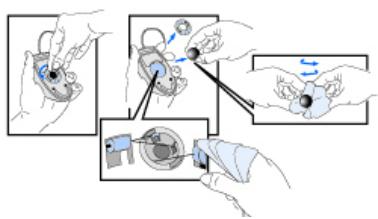
**Table 2-2**   **Your Workstation Has a Hardware Problem**

Your Workstation has no sound.	
Check that...	*How*
The lime green Speaker/Headphone connector is plugged into the multi-media keyboard.	Either disconnect the lime green connector to activate the internal speaker or plug-in headphones or speaker into the keyboard.

troubleshooting tips:

• Restart your workstation and see if the problem recurs.

• Run HP e-Diagtools. You can create a hardware profile of your Workstation (Support Ticket) that can be faxed or mailed to support. Refer to this section for more information on using e-Diagtools.

• Visit the HP Support web site www.hp.com/go/workstationsupport to see if you are experiencing a known problem.

• Update your Workstation's BIOS. The latest BIOS for your Workstation and instructions on updating the BIOS are available from HP's Support web site at:

     www.hp.com/go/workstationsupport

• Record the details of the problem so that you can describe it accurately.

• Think of anything you may have done recently before you first experienced the problem.

• If possible, have your system up and running and close by when you call HP Support.

• We recommend you contact your HP dealer, or contact HP Support outside of peak times (mid-morning and week day in the early evenings).

if you lose the key

If you lose the key to the workstation, you must order a replacement lock (HP Part Number 5064-9154) from the HP dealer or HP Sales and Service Office. The new lock is delivered with two keys. Contact your HP dealer for installing the new lock.

need more help?

For more detailed help refer to the *x1100 Technical Reference* which is available on HP's support web site at:

        www.hp.com/go/workstationsupport

pre-boot diagnostics audio signal

When your workstation starts up, the BIOS performs Pre-Boot Diagnostics to test your hardware configuration for any problems. If a problem is detected during pre-boot, the Pre-Boot Diagnostics will emit an audio signal through the workstation's internal speaker.

The Pre-Boot Diagnostics emits an audio sequence with two kinds of sounds. The first is an unusual series of tones that indicate an anomaly has been detected. This series of sounds also contains an electronic signal that can be sent through a telephone line to an authorized help desk or HP Support, if necessary. This signal cannot be interpreted by the human ear. However, it can be decoded by help desk equipment to extract the workstation model and serial number.

The second type of sound is a series of long beeps that indicate a particular error. If you hear a series of beeps, you should count them as this will help you detect the cause of the problem.

Number of Beeps	Meaning
1	Processor absent, not correctly connected or ZIF socket not closed
2	Power supply is in protected mode
3	No memory, bad memory modules, incompatible memory module
4	Graphics card problem
5	PnP/WorkstationI initialization problem
6	Corrupted BIOS. You need to activate crisis recovery procedure
7	Defective system board

Please note that Memory (code 3), Video Card (code 4), and PnP/workstation (code 5) errors will only be heard after a 15-second delay.

if you miss the beep code

If you miss the beep code, turn off the workstation by pressing the on/off power button for five seconds or more, then listen for the signal again.

hp Diagtools hardware diagnostics

NOTE   Run e-Diagtools before contacting HP for Warranty service. This is to obtain information that will be requested by a Support Agent.

Your hard disk includes a hardware diagnostic partition containing either HP Diagtools or HP e-Diagtools hardware diagnostic utilities. These may be used to diagnose hardware-related problems on your HP workstation. Do NOT delete this partition.

With this utility you can:

- Check the hardware configuration and verify that it is functioning correctly.

- Test individual hardware components.

- Diagnose hardware-related problems.

- Obtain a complete hardware configuration.

- Provide precise information to an HP support agent so they can solve problems quickly and effectively.

For more information about this utility, refer to the *x1100 Technical Reference*, available on the HP web site at:

    www.hp.com/go/workstationsupport

obtaining e-Diagtools

HP e-Diagtools is supplied on the following media:

- The Utility Partition pre-installed on your hard disk drive (recommended)

- The CD-ROM that came with your Workstation:

    — *HP Workstations Drivers and Diagnostics*

- The *HP Diagtools CD*. You can order this CD-ROM from HP's Support web site: www.hp.com/desktops/diagtools.

starting e-Diagtools from the utility partition on your hard drive

NOTE	This method will only work if the diagnostics partition on your hard disk drive is intact.

1. Restart your workstation and press the function key **F10** when you see the message "Press F10 to enter HP Utility Partition or any other key to proceed…"

2. In the menu, select the option to run e-Diagtools hardware diagnostics.

starting e-Diagtools from the CD-ROM

1. Insert the HP Workstations Drivers and Diagnostics CD-ROM in the CD-ROM drive.

2. Restart the workstation.

3. Press the **F8** key and select the CD-ROM drive to boot first.

NOTE	If you are unable to boot from your CD-ROM drive, restart your workstation and press **F2** to enter HP's Setup program. Check the Boot device settings to ensure that your workstation can boot from the CD-ROM.

running hp e-Diagtools

Make sure:

- The workstation model must match the CD-ROM (the CD-ROM is locked to a specific workstation model).

- CD-ROM drive has been configured to boot before the hard disk drive.

producing a support ticket

To produce a complete record of your system's configuration and test results, you will need to create a Support Ticket. This is a simple text file that contains essential information and is designed to assist your local or HP Support Agent.

If you are using HP e-Diagtools from the hard disk drive and your workstation is connected to a LAN using TCP/IP (Internet) protocols, you have the option of e-mailing your Support Ticket from within e-Diagtools.

If you are using HP e-Diagtools from a CD-ROM, you can create the Support Ticket file on either the hard disk drive or floppy disk drive.

You can also view the Support Ticket file using the "Support Ticket Viewer" program.

The Support Ticket file can be easily be sent, via e-mail or fax.

hp recovery CD-ROM

The HP Recovery CDs enable you to restore your computer to its original factory configuration and reinstall drivers or other factory-supplied software components. The drivers and software utilities, including documentation and navigational aids, help you to recover the pre-loaded software. There are two CD-ROMs:

- A HP Workstation Recovery CD-ROM

- A HP Workstations Drivers and Diagnostics

what functions are available?

The HP Recovery CD provides the following functions:

- **Install Windows 2000:**
  To recover your HP workstation to its original state as provided by HP.

- **Install Windows NT:**
  To install the Windows NT operating system on your HP workstation.

CAUTION   **Using the HP Recovery CD will permanently erase the current contents of your hard disk. You should always backup your data and personal files before using the CD-ROM.**

before performing a recovery

Before performing a recovery, upgrade or downgrade, you should make a checklist for each type of function. You will need the Administrator password to make any changes to the *Setup* program.Make a note of any changes.

- The workstation model must match the HP Workstation Recovery CD-ROM and HP Workstations Drivers and Diagnostics CD-ROM (the HP Workstation Recovery CD-ROM is locked to a specific workstation model). Note that both of these CD-ROMs are required for recovery.

- Backup all data files and, if necessary, software applications.

- Upgrading to the latest BIOS version before performing a recovery is recommended.

- *Setup* program settings: Clear any BIOS-level passwords. In the Security menu, set all Hardware Protection items to "Enabled" or "Unlocked" (if applicable). Check also that Booting from the CD-ROM is enabled; in the Boot menu, the CD-ROM drive is configured to boot before the hard disk drive in the Boot Device Priority List.

performing a full recovery

Depending on the hardware configuration, a full system recovery should take from 30 minutes to 2 hours.

CAUTION   **Remember, this procedure will erase everything from the hard disk drive (primary partition, if defined). Ensure that *all* data files and software applications have been saved.**

1. Shutdown the operating system and switch off your workstation.

2. Remove any non-standard components that were added after you received the workstation to restore it to its original factory configuration.

3. Insert the HP Workstation Recovery CD-ROM into the CD-ROM drive and start the workstation.

4. Press the **F8** key and select the CD-ROM to boot first.

5. The computer will boot from the CD-ROM and display a DOS-style menu. Make the appropriate selection from the menu to recover your HP workstation to its original state as delivered by HP.

6. Remove the Recovery CD-ROM from the CD-ROM drive, when prompted.

7. Insert the HP Workstations Drivers and Diagnostics CD-ROM into your CD-ROM drive.

8. Press Y to continue.

9. Remove the HP Workstations Drivers and Diagnostics CD-ROM when prompted and restart the workstation. The install process continues.

hp customer care center phone numbers

HP Customer Care Centers can help you solve issues related to HP products and, if necessary, initiate appropriate service procedures. In the U.S.A, telephone support is available 24 hours a day, 7 days a week. Elsewhere, it is available during normal office hours. Here is the URL for HP Customer Care Center phone numbers:

```
http://www.hp.com/workstations/support/collaborate/call_centers.html
```

A warranty and regulatory information

Declaration of Conformity

according to ISO/IEC Guide 22 and EN 45014

Manufacturer: Hewlett-Packard Company
3404 East Harmony Rd.
Fort Collins, CO 80528
USA

Declares that the:

Product Name:	HP Workstation
Model Numbers:	A7777A, A7778A, A7779A, A7780A, A7882A, A7883A, A7884A
System Number:	x1000 is the System Number for the previous seven Model Numbers
Model Numbers:	A7863A, A7864A, A7865A, A7866A, A7867A
System Number:	x1100 is the System Number for the previous five Model Numbers
Base Product Number:	x1000 and 5X150
Product Options:	all

conforms to the following specifications:

Safety	IEC 950:1991+A1+A2+A3+A4+A11/EN 60950:1992+A1+A2+A3+A4
	IEC 60825-1:1993/EN60825-1:1994+A11 Class 1 for LEDs
	USA 21CFR Subpart J – for FC Laser module
	China GB4943-1995
	Russia GOST R 50377-92
EMC.	CISPR 22: 1997 / EN 55022: 1998 Class A
	CISPR 24: 1997 / EN 55024: 1998
	IEC 61000-3-2: 2000 / EN 61000-3-2: 1995
	IEC 61000-3-3: 1994 / EN 61000-3-2: 1995
	U.S. FCC Part 15, Class A
	Japan VCCI Class A
	Australia/New Zealand AS/NZS 2046.1/2:1992, AS/NZS 3548:1995
	China GB9254-1988
	Taiwan CNS 13438 Class A
	Russia GOST R 51318.22-99

and is certified by:

UL Listed to UL1950, 2nd edition, File E146385
cUL Listed to CSA 22.2 No. 950-M93
TUV Certified to EN60950 2nd edition with A1+A2+A3+A4
HP Fort Collins CCQD HTC

supplementary information:
The product herewith complies with the requirements of the following Directives and carries the CE marking accordingly:
   - the EMC directive 89/336/EEC and 92/31/EEC and 93/68/EEC
   - the Low Voltage Directive 73/23/EEC and 93/68/EEC
This product was tested in a typical Hewlett-Packard workstation configuration.

For Compliance Information ONLY, contact: European Contact: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Dept. HQ-TRE Standards Europe, Herrenberger Strasse 130 Boeblingen (FAX: +49-7031-14-3143)

Americas Contact: Hewlett-Packard, Fort Collins Site Quality Mgr., Mail Stop 64, 3404 E. Harmony Road, Fort Collins, CO 80528, U.S.A.

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regulatory information

FCC (for USA only)

Federal Communications Commission Radio Frequency Interference Statement
NOTE:
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules and the Canadian Department of Communications. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Hewlett-Packard's FCC Compliance Tests were conducted with HP-supported peripheral devices and HP shielded cables, such as those you receive with your system. Changes or modifications not expressly approved by Hewlett-Packard could void the user's authority to operate the equipment.

notice for Canada

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
Cet appareil numérique de la Class A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

safety warning for the USA and Canada

If the power cord is not supplied with the computer, select the proper power cord according to your local national electric code.
USA: use a UL listed type SVT detachable power cord.
Canada: use a CSA certified detachable power cord.

For your safety, never remove the Workstation's cover without first removing the power cord and any connection to a telecommunication network. Always replace the cover before switching on again.

Si le cordon secteur n'est pas livré avec votre ordinateur, utiliser un cordon secteur en accord avec votre code electrique national.
USA: utiliser un cordon secteur "UL listed," de type SVT.
Canada: utiliser un cordon secteur certifié CSA.

Pour votre sécurité, ne jamais retirer le capot de l'ordinateur sans avoir

préalablement débranché le cordon secteur et toute connection à un réseau de télecommunication. N'oubliez pas de replacer le capot avant de rebrancher le cordon secteur.

notice for the Netherlands

Bij dit apparaat zijn batterijen geleverd. Wanneer deze leeg zijn, moet U ze niet weggooien maar inleveren als KCA.

notice for Germany

Wenn die Batterie nicht korrekt eingebaut wird, besteht Explosionsgefahr. Zu ihrer eigenen Sicherheit sollten Sie nicht versuchen, die Batterie wiederaufzuladen, zu zerlegen oder die alte Batterie zu verbrennen. Tauschen Sie die Batterie nur gegen den gleichen oder ähnlichen Typ aus, der vom Hersteller empfohlen wird. Bei der in diesem PC intergrierten Batterie handelts sich um eine Lithium-Batterie, die keine Schwermetalle enthält. Batterien und Akkumulatoren gehören nicht in den Hausmüll. Sie verden vom Hersteller, Händler oder deren Beauftragten kostenlos zurückgenommen, um sie einer Verwertung bzw. Entsorgung zuzuführen.

noise declaration for Germany

Lärmangabe nach Maschinenlärmverordnung - 3 GSGV (Deutschland) LpA < 70 db am Arbeitsplatz normaler Betrieb nach EN27779: 11.92.

notice for Japan (Class A)

　この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

notice for Korea

사용시 안내분 (A급 기기)

이 기기는 업무용으로 전자파장해검정를 받은 기기이오니,만약 잘못 구입하셨을 때에는 구입한 곳에서 비입무용으로 교환하시기 비랍니다.

notice for Taiwan

警告使用者:
這是甲類的資訊產品,在居住的
環境中使用時,可能會造成射頻
干擾,在這種情況下,使用者會
被要求採取某些適當的對策。

hp hardware warranty

Important: This is your hardware product warranty statement. Please, read it carefully.

Warranty terms may be different in your country. If so, your Authorized HP Dealer or Hewlett-Packard Sales and Service Office can give you details.

HP products may contain remanufactured parts equivalent to new in performance or may have been subject to incidental use.

HP products external to the system processor unit —such as external storage subsystems, displays, printers, and other peripherals— are covered by the applicable warranties for those products; HP software is covered by the HP Software Product Limited Warranty

FOR CONSUMER TRANSACTIONS IN AUSTRALIA AND NEW ZEALAND: THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

three year limited hardware warranty

Hewlett-Packard (HP) warrants this hardware product against defects in materials and workmanship for a period of three years from receipt by the original end-user purchaser.

The three year warranty includes on-site service during the first year of use (free parts and labor), and parts service provided by an HP Service Center or a participating Authorized HP Computer Dealer Repair Center, during the second and third years of use.

If HP receives notice of above defined defects during the warranty period, HP will either, at its option, repair or replace products, which prove to be defective.

Should HP be unable to repair or replace the product within a reasonable amount of time, the customer's alternate exclusive remedy shall be a refund of the purchase price upon return of the product.

The system processor unit, keyboard, mouse, and Hewlett-Packard accessories inside the system processor unit —such as video adapters, mass storage devices, and interface controllers— are covered by this warranty.

This warranty is extended worldwide under certain conditions (please check with your local HP office) to products purchased from HP or an Authorized HP Computer Dealer which are reshipped by the original purchaser either for use by the original purchaser or provided as an incidental part of systems integrated by

the original purchaser. When available in the country of use, service is provided in the same manner as if the product was purchased in that country and can only be provided in countries where the product is designed to operate. If the product is not normally sold by HP in the country of use, it must be returned to the country of purchase for service. Response time for on-site service, and parts delivery turn-around time for parts service, are subject to changes from standard conditions based upon non-local parts availability.

limitation of warranty

The above warranty shall not apply to defects resulting from: misuse; unauthorized modification; operation or storage outside the environmental specifications for the product; in-transit damage; improper maintenance; or defects resulting from use of non-HP software, accessories, media, supplies, consumables, or such items not designed for use with the product.

Reloading the bundled or pre-loaded software on your Workstation is not covered by the HP warranty.

HP MAKES NO OTHER EXPRESS WARRANTY, WHETHER WRITTEN OR ORAL, WITH RESPECT TO THIS PRODUCT. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS IS LIMITED TO THE THREE-YEAR DURATION OF THIS WRITTEN WARRANTY. SOME STATES OR PROVINCES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

This warranty gives you specific legal rights, and you may also have other rights, which vary, from state to state, or province to province.

limitation of liability and remedies

THE REMEDIES PROVIDED ABOVE ARE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL HP BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON WARRANTY, CONTRACT, TORT, OR ANY OTHER LEGAL THEORY.

The foregoing limitation of liability shall not apply in the event that any HP product sold hereunder is determined by a court of competent jurisdiction to be defective and to have directly caused bodily injury, death, or property damage; provided, that in no event shall HP's liability for property damage exceed the greater of $50,000 or the purchase price of the specific product that caused such damage.

Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages —including lost profit— so the above limitation or

exclusion may not apply to you.

obtaining on-site warranty service

To obtain on-site warranty service, the customer must contact an HP Sales and Service Office (in the US, call the HP Customer Support Center at (970) 635-1000) or a participating Authorized HP Computer Dealer Repair Center. The customer must be prepared to supply proof of the purchase date.

The system processor unit, keyboard, mouse, and Hewlett-Packard accessories inside the system processor unit —such as video adapters, mass storage devices, and interface controllers— are covered by this warranty.

During the on-site warranty period, customer-replaceable components may be serviced through expedited part shipment. In this event, HP will prepay shipping charges, duty, and taxes; provide telephone assistance on replacement of the component when necessary; and pay shipping charges, duty, and taxes for any part that HP asks to be returned.

On-site visits caused by non-Hewlett-Packard products —whether internal or external to the system processor unit— are subject to standard per-incident travel and labor charges.

On-site service for this product is restricted or unavailable in certain locations. In HP Excluded Travel Areas— areas where geographical obstacles, undeveloped roads, or unsuitable public transportation prohibit routine travel— service is provided on a negotiated basis at extra charge.

Response time for HP on-site service in an HP Service Travel Area is normally next business day (excluding HP holidays) for HP Travel Zones 1-3 (generally 100 miles or 160 Km from the HP office). Response time is second business day for Zones 4 and 5 (200 miles, 320 Km); third business day for Zone 6 (300 miles, 480 Km); and negotiated beyond Zone 6. Worldwide Customer Support Travel information is available from any HP Sales and Service Office.

Travel restrictions and response time for dealer or distributor service are defined by the participating dealer or distributor.

Service contracts which provide after-hour or weekend coverage, faster response time, or service in an Excluded Travel Area are often available from HP, an authorized dealer, or authorized distributor at additional charge.

customer responsibilities

The customer may be required to run HP-supplied diagnostic programs before an on-site visit or replacement part will be dispatched.

The customer is responsible for the security of its proprietary and confidential information and for maintaining a procedure external to the products for

reconstruction of lost or altered files, data, or programs.

The customer must provide: access to the product; adequate working space and facilities within a reasonable distance of the product; access to and use of all information and facilities determined necessary by HP to service the product; and operating supplies and consumables such as the customer would use during normal operation.

A representative of the customer must be present at all times. The customer must state if the product is being used in an environment which poses a potential health hazard to repair personnel; HP or the servicing dealer may require that the product be maintained by customer personnel under direct HP or dealer supervision.

obtaining parts warranty service

When parts warranty service applies, the customer may be required to run HP-supplied diagnostic programs before a replacement part will be dispatched. The customer must be prepared to supply proof of purchase.

The customer shall return some defective parts upon HP demand. In that case, HP will prepay shipping charges for parts returned to the HP parts service center.

hp telephone support services

HP free telephone support for your Workstation is available during the first year from date of purchase. This service will also provide technical assistance with the basic configuration and setup of your HP Workstation and for the bundled or pre-loaded operating system.

HP does NOT provide telephone support for Workstations configured as network servers. We recommend HP NetServers for your network server requirements.

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hp software limited warranty

THIS HP SOFTWARE LIMITED WARRANTY SHALL COVER ALL SOFTWARE, INCLUDING OPERATING SYSTEM SOFTWARE, THAT IS PROVIDED TO YOU AS PART OF THE HP PRODUCT. IN CASE OF CONFLICT BETWEEN HP AND NON-HP WARRANTY TERMS, THESE HP WARRANTY TERMS SHALL PREVAIL.

software

hp software warranty

HP warrants for a period of ninety (90) days from the date of purchase that all pre-installed HP software will execute their programming instructions when all files are properly installed. HP does not warrant that the software will be uninterrupted or error free. In case of software failure to execute its programming instructions during the warranty period, customer's remedy will be the replacement of software provided by HP or a refund upon return of the product and all copies of software, installation instructions and remote assistance (by phone and/or by E-mail).

other software (if supplied): All other software is warranted by the software vendor and is not warranted by HP.

operating system

Microsoft operating systems and software

HP warrants for a one (1) year period from the date of the purchase the installation and configuration of the pre-installed version of the operating system and software. HP does not warrant that the functionality of the operating system and software will be uninterrupted or error free. During the warranty period, in the event of a software failure to execute its programming instructions during the installation and/or configuration, HP will provide customers with remote assistance (by phone and/or by mail) for re-installation and configuration.

all other operating systems: Other Operating Systems are warranted by the Operating System vendor and are not warranted by HP.

removable media (if supplied)

HP warrants the removable media, if supplied, upon which this product is recorded to be free from defects in materials and workmanship under normal use for a period of ninety (90) days from the date of purchase. Customer's remedy in case of defect will be the replacement of media provided by HP or a refund upon return of the product and destruction of all other non-removable media copies of the software.

hp service procedures

notice of warranty claims: Customer must notify HP in writing of any warranty claim not later than thirty (30) days after the expiration of the warranty period.

limitation of warranty: HP makes no other express warranty, whether written or oral with respect to this product. Any implied warranty of merchantability or fitness for a particular purpose is limited to the 90-day duration of this written warranty. HP is not liable in case of misuse, unauthorized modification, improper maintenance, or defects resulting from unauthorized use with non HP equipment.

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This warranty in no way effects Customer's right under statutory law.

obtaining warranty service: Warranty Service may be obtained from the nearest HP Sales office or in other locations indicated on HP's Web Site.

hp software license agreement

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product recovery CD-ROM. If your HP product was shipped with a product recovery CD-ROM: (i) The product recovery CD-ROM and/or support utility software may only be used for restoring the hard disk of the HP product with which the product recovery CD-ROM was originally provided. (ii) The use of any operating system software by Microsoft contained in any such product recovery CD-ROM shall be governed by the Microsoft License Agreement.

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support policy for support pack of operating systems. HP provides end user support for HP Workstations that use Microsoft Operating Systems, including its latest service packs. This support will be available within 30 days of the software being released.

warranty and regulatory information
hp software limited warranty